

The following listing of claims replaces all prior versions and listings of claims in this application.

Listing of Claims:

1. (previously presented) A polymer-based ammunition, comprising:
a composite material including
a polymer matrix including at least one thermoplastic elastomeric polymer (TPE) component, and at least one soft elastomeric polymer component that at ambient temperatures is above its glass transition temperature;
particles of a sufficiently high specific gravity material that are dispersed in the polymer matrix and present in an amount such that the composite material has a specific gravity of in a range from about 2 to 3; and
the composite material having a shape of a pre-selected projectile.
2. (original) The polymer-based ammunition according to claim 1 wherein the thermoplastic elastomeric polymer (TPE) component comprises a block copolymer having at least one elastomeric block.
3. (original) The polymer-based ammunition according to claim 2 wherein the thermoplastic elastomeric polymer (TPE) component is selected from the group consisting of polystyrene-polyisobutylene block copolymers, polystyrene-polybutadiene block copolymers, polystyrene-polyisoprene block copolymers, polystyrene-poly(ethylene-butylene) block copolymers, polystyrene-poly(ethylene-propylene) block copolymers, thermoplastic polyolefins (TPOs), and dynamically vulcanized TPVs.
4. (previously presented) The polymer-based ammunition according to claim 1, wherein the thermoplastic elastomeric polymer (TPE) component has a structure selected from the group consisting of linear, star, arborescent, comb, brush, centipede, hyperbranched, and dendritic.

5. (previously presented) The polymer-based ammunition according to claim 1, wherein the elastomeric polymer component is selected from the group consisting of polyisobutylene, polyisobutylene-isoprene copolymers, polyisobutylene-styrene copolymers, polyisobutylene- alkyl styrene copolymers, halogenated polyisobutylene-alkyl styrene terpolymers, polybutadiene, polyisoprene, polyethylene-propylene copolymers, polyethylene-propylene diene terpolymers.
6. (previously presented) The polymer-based ammunition according to claim 1, wherein the elastomeric polymer component is polyisobutylene, and wherein the thermoplastic elastomeric polymer (TPE) component is polystyrene-polyisobutylene-polystyrene (SIBS).
7. (previously presented) The polymer-based ammunition according to claim 1, wherein the elastomeric polymer component is a polyisobutylene-isoprene copolymer, and wherein the thermoplastic elastomeric polymer (TPE) component is polystyrene-polyisobutylene-polystyrene (SIBS).
8. (previously presented) The polymer-based ammunition according to claim 1, wherein the elastomeric polymer component is present in an amount from about 10% to about 90% by weight of the polymer matrix, and wherein the thermoplastic elastomeric polymer component is present in an amount from about 90 to about 10% by weight of the polymer matrix.
9. (previously presented) The polymer-based ammunition according to claim 1, wherein the elastomeric polymer component is present in an amount from about 40% to about 60% by weight of the polymer matrix, and wherein the thermoplastic elastomeric polymer component is present in an amount from about 60 to about 40% by weight of the polymer matrix.

10. (original) The polymer-based ammunition according to claim 5 wherein the elastomeric polymer component has a structure selected from the group consisting of linear, star, arborescent, comb, brush, centipede, hyperbranched and dendritic.
11. (previously presented) The polymer-based ammunition according to claim 1, wherein the specific gravity of the composite material is at least about 2.44.
12. (previously presented) The polymer-based ammunition according to claim 1, wherein the high specific gravity material is present in the composite material in an amount of from about 50 to about 90% by volume of the total composite.
13. (previously presented) The polymer-based ammunition according to claim 1, wherein the high specific gravity material is present in the composite material in an amount of from about 60 to about 80% by volume of the total composite.
14. (previously presented) The polymer-based ammunition according to claim 1, wherein the high specific gravity material is present in the composite material in an amount of from about 10 to about 90% by volume of the total composite.
15. (previously presented) The polymer-based ammunition according to claim 1 wherein the composite material has a cylindrical or spherical shape.
16. (previously presented) The polymer-based ammunition according to claim 1 having a hardness value, as measured according to the Shore A scale, in a range of from about 15 to about 80.
17. (previously presented) The polymer-based ammunition according to claim 1 having a hardness value, as measured according to the Shore A scale, in a range of from about 30 to about 55.

18. (previously presented) The polymer-based ammunition according to claim 1 wherein the particles of a high specific gravity material are selected from the group consisting of iron powder, tungsten, copper, bismuth, and iron oxide.
19. (previously presented) The polymer-based ammunition according to claim 1 wherein the particles of a high specific gravity material are iron powder particles.
20. (previously presented) The polymer-based ammunition according to claim 19 wherein the iron powder particles have sizes in a range from about 71.4% of -100 to +325 U.S. Mesh and 23.2% of -325 U.S. Mesh, specific gravity, 7.
21. (previously presented) The polymer-based ammunition according to claim 1 produced by molding the composite material into any one of a cylindrical or spherical shape.
22. (original) The polymer-based ammunition according to claim 21 wherein the step of molding is one of injection molding and compression molding.
23. (previously presented) The polymer-based ammunition according to claim 1 wherein the composite material has a dynamic mechanical compression creep below a threshold creep so that the polymer-based ammunition maintains its shape.
24. (original) The polymer-based ammunition according to any one of claim 23 wherein said threshold dynamic mechanical compression creep is about 20%.
25. (original) The polymer-based ammunition according to claim 23 wherein dimensions of the composite material do not change more than 10% for at least a year.
26. (previously presented) The polymer-based ammunition according to claim 1 wherein the composite material has a dynamic mechanical compression creep between 4 and 20% creep.

27.-37. (canceled)